

Title (en)

HYBRID DRIVE SHAFT USING FRICTION-STIR WELDING AND FABRICATION METHOD THEREOF

Title (de)

HYBRIDANTRIEBSWELLE MIT RÜHRREIBSCHWEISSEN UND HERSTELLUNGSVERFAHREN DAFÜR

Title (fr)

ARBRE D'ENTRAÎNEMENT HYBRIDE SOUDÉ PAR AGITATION/FRICTION ET PROCÉDÉ POUR SA FABRICATION

Publication

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Application

**EP 14737876 A 20140110**

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Abstract (en)

The present invention relates to a hybrid drive shaft using friction-stir welding and a fabrication method thereof, and more particularly to a drive shaft comprising a metal tube, a composite material layer formed inside the metal tube, and a metal yoke connected to both ends of the drive shaft by means of friction-stir welding so as to make the components simple and lightweight and to enhance the durability, and a fabrication method thereof. The fabrication method comprises the steps of: shaping a composite material sheet into a cylindrical form by means of a mandrel; bonding the cylindrical composite material layer to the inside of a metal tube by rotating the mandrel snugly inserted in the composite material cylinder; maintaining the inside of the metal tube in a vacuum state for a given duration so as to make the composite material layer stick to the metal tube; heating the metal tube maintained in the vacuum state in an autoclave so as to mold the composite material; and adjoining a connection member for connecting other parts to the ends of the metal tube by friction-stir welding.

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